

ATTACHMENT ONE

MAG BUILDING CODES COMMITTEE

Permit Submittal Requirements

Residential (Single-Family) Solar Photovoltaic (PV) Systems For Utility Grid-Tie Connection

5/15/02

In an effort to promote uniformity through MAG jurisdictions under the purview of life safety (NEC Article 690), the following submittal requirements are proposed as a MAG standard for securing necessary electrical/building permits for residential (single-family) photovoltaic (PV) systems:

1. Location of PV installation indicated on plans (roof plan and elevation).
2. Mounting details for PV panel installation.
3. Electrical one-line and three-line (showing phases, neutral and ground) diagram.
4. Cut sheet and listing for inverter (DC to AC conversion).
5. Note on plans that PV equipment shall be installed in accordance with NEC 690 and posted with applicable warnings, signage & plaques per NEC 705-10, 690-17 & 690-64(b)(5).
6. Acknowledgement letter from utility company for grid-tie PV systems.
 - grid-tie encompasses not only paralleled inverters but also inverters that constitute a potential back feed source, (i.e. - those that are connected to the utility and are programmed in the "non-utility interactive mode" but have the capability of being re-programmed to back feed in the "utility interactive mode")

Local planning and zoning regulations, involving such requirements as setback, height limitations, color, reflectivity or other design considerations, may apply. See the local governing jurisdiction for further information.

5/3/02

ATTACHMENT TWO
MAG BUILDING CODES COMMITTEE

Permit Submittal Requirements
Commercial Solar Photovoltaic (PV) Systems
For Utility Grid-Tie Connection

5/15/02

In an effort to promote uniformity through MAG jurisdictions under the purview of life safety (NEC Article 690), the following submittal requirements are proposed as a MAG standard for securing necessary electrical/building permits for commercial solar photovoltaic (PV) systems:

1. Location of PV installation indicated on plans (roof plan and elevation).
2. Mounting details for PV panel installation.
3. Structural plans prepared and sealed by a State of Arizona registered engineer for support and uplift of PV panels.
4. Electrical one-line and three-line (showing phases, neutral and ground) diagram.
5. Electrical plans prepared and sealed by a State of Arizona registered electrical engineer.
6. Cut sheet and listing for inverter (DC to AC conversion).
7. Note on plans that PV equipment shall be installed in accordance with NEC 690 and posted with applicable warnings, signage & plaques per NEC 705-10, 690-17 & 690-64(b)(5).
8. Acknowledgement letter from utility company for grid-tie PV systems.
 - grid-tie encompasses not only paralleled inverters but also inverters that constitute a potential back feed source, (i.e. - those that are connected to the utility and are programmed in the "non-utility interactive mode" but have the capability of being re-programmed to back feed in the "utility interactive mode")

Local planning and zoning regulations, involving such requirements as setback, height limitations, color, reflectivity or other design considerations, may apply. See the local governing jurisdiction for further information.

5/3/02

ATTACHMENT THREE

SRP-CERTIFIED HOME PROGRAM

Energy efficient housing marketing programs have a long history at SRP. SRP was part of the Gold Medallion program in the 1950s and 1960s, the Remarkable Energy Value program in the 1970s, the Energy Efficient Home program in the 1980s, and the Climate Crafted Home in the early 1990s. These programs required the homes to be total electric and feature the heat pump. Our current energy efficient home program, the SRP-Certified Home (SCH) program, was introduced in May 1995. Our program today is more flexible. Homes can be dual-energy as long as they utilize a high-efficiency heat pump. While these programs have had various marketing objectives, one thing has always been constant – the homes have to be energy efficient.

For a subdivision to be SRP certified, SRP works directly with the builder to ensure that each home design meets our energy-efficiency standards. The style and designs of SRP-Certified Homes vary greatly, allowing builders to create unique homes.

Energy Efficiency Certification

- SRP will certify a homebuilder's home plans for an entire subdivision as energy efficient and grant the SRP-Certified Home designation.
- The energy efficiency standard is determined by SRP's energy consumption model called the Cost Analysis Program (CAP). CAP is an hourly simulation program that combines user specific inputs and program defaults to generate monthly and annual energy consumption and cost estimates. Over the years CAP has been validated against load research data as well as other simulation computer models, including DOE2.
- SRP certification means the home design includes certain energy-efficient features. Certification is based on the SRP-Certified Homes Point Sheet that primarily is a construction specification trade-off system. With the system, one design feature may be substituted for another if the overall design complies with the SRP-Certified Home energy consumption standard.
- SCH designation is a marketing tool for homebuilders to provide third-party energy efficiency reassurance for their potential customers.
- Homebuyers receive energy efficiency reassurance based on the SRP-Certified Home designation and the SRP CAP system analysis.

The Home Stretch Mortgage

Buyers purchase homes for reasons primarily related to quality construction, price, finance, and location. Energy efficiency also may be an important purchase factor, since utility savings can be considered during the mortgage qualification process. SRP introduced this concept to the Phoenix market in 1989 with the Home Stretch Mortgage. The Home Stretch Mortgage means that when a buyer purchases an SRP-Certified Home, he or she may be able to qualify for a larger loan.

This is made possible when lenders consider SRP-Certified Homes' energy efficiency, a measure that frees them to allow for greater debt-to-income ratios for principal, interest, taxes and insurance. The secondary markets of Fannie Mae and Freddie Mac provide special underwriting guidelines for qualifying energy conservation programs. For the Home Stretch Mortgage, Fannie Mae will increase a debt-to-income ratio by 2 percent. Freddie Mac will increase it by 3 percent.

Since the 1990s over 50,000 homebuyers have purchased homes under SRP's energy efficient home programs. We currently have approximately 50 builders participating in our SRP-Certified Home program representing nearly 100 subdivisions.



ATTACHMENT FOUR

CODE WORKSHEET

CITY/ TOWN	Building	Mechanical	Plumbing	Electric	Residential	Fire
Avondale	2000 IBC	2000 IMC	1994 UPC	1999 NEC	2000 IRC	2000 IFC
Buckeye	1997 UBC	1997 UMC	1997 UPC	1996 NEC		1997 UFC
Carefree	1994 UBC	1994 UMC	1994 UPC	1996 NEC		1994 UFC**
Cave Creek	2000 IBC	2000 IMC	1994 UPC Not State	1999 NEC	2000 IRC	1997 UFC
El Mirage	1997 UBC	1997 UMC	1994 UPC	1996 NEC		1997 UFC
Fountain Hills	1994 UBC	1994 UMC	1994 UPC	1993 NEC		1997 UFC
Gila Bend						
Gila River	1997 UBC	1997 UMC	1997 UPC	1999 NEC		1997 UFC
Gilbert	2000 IBC	2000 IMC	1994 UPC	1999 NEC	2000 IRC	2000 UFC with 97 UFC standards
Glendale	1997 UBC	1997 UMC	1994 UPC	1996 NEC		1997 UFC
Goodyear	2000 IBC	2000 IMC	1994 UPC (State)	1999 NEC	2000 IRC	
Guadalupe	1997 UBC	1997 UMC	1994 UPC	1999 NEC		1997 UFC
Litchfield Park	2000 IBC	2000 IMC	1994 UPC	1999 NEC	2000 IRC	2000 IFC
Mesa	1994 UBC	1994 UMC	1994 UPC	1993 NEC		1997 UFC
Paradise Valley	1997UBC	1997 UMC.	1994 UPC	1996 NEC		1997 UFC
Peoria	2000 IBC	2000 IMC	1994 UPC	1999 NEC	2000 IRC	1997 UFC
Phoenix	1997 UBC	2000 UMC	1994 UPC	1999 NEC		

Queen Creek	2000 IBC	2000 IMC	1994 UPC	1999 NEC	2000 IRC	2000 IFC
Salt River						
Scottsdale	1997 UBC	1997 UMC	1994 UPC Not State Code	1999 NEC		1997 UFC
Surprise	2000 IBC	2000 IMC	1994 UPC	2000 IEC (1999 NEC)	2000 IRC	2000 IFC
Tempe*	1994 UBC	1991 UMC	1991 UPC	1996 NEC		
Tolleson	1997 UBC	1997 UMC	1994 UPC	1996 NEC		1997 UFC
Wickenburg	1991 UBC	1991 UMC	1991 UPC	1990 NEC		1991 UFC
Youngtown	1997 UBC	1997 UMC	1997 UPC	1996 NEC		1997 UFC
Maricopa County	1997 UBC	1997 UMC	1994 UPC	1999 NEC	n/a	n/a

Source: League of Arizona Cities and Towns and Maricopa Association of Governments 2002.

*Tempe is getting ready to adopt the 1994 UPC, 1997 UBC and the 1999 NEC

** Soon to adopt 2000 International Codes

Updated as of March 21, 2002

ATTACHMENT FIVE
MAG BUILDING CODES COMMITTEE - CONTACT LIST (March 2002)

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Skip Blunt	Wickenburg	928-684-5451x202	602-506-1580	skip@ci.wickenburg.az.us
not appointed	Youngtown	623-933-8286 or 602-618-4760	623-933-5951	
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Rus Brock	Home Builders Assn.	602-274-6545	602-234-0442	brockr@hbaca.org